Transportation Plan

2008 – 2035

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Acknowledgements

This plan was prepared by the Staff of the Columbus Area Metropolitan Planning Organization (CAMPO) in cooperation with the CAMPO Technical Advisory Committee for the CAMPO Policy Board. The Policy Board, Staff and Technical Advisory Committee would like to thank those citizens who provided their time and input to this plan.

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Forward

Why the need for a Transportation Plan?

The word "mobility" stems from the Latin word *mobilis,* which is defined as *moving or capable of being moved*. Mobility has become as fundamental to the American concept of freedom as has the idea of freedom of speech. If mobility is a form of freedom, then a loss of mobility is a loss of freedom.

According to the Federal Highway Administration (FHWA), between 1980 and 1999 the number of vehicle miles traveled in the United States increased by 76 percent, while during the same time period capacity grew by only 1.5 percent.[1] This growth in vehicle miles traveled has resulted in gridlock in many parts of the nation. According to the Texas Transportation Institute (TTI), sixty one percent of the arterial lane miles in our nation's seventy five largest urban areas are routinely congested. This congestion resulted in 3.5 billion people hours and 5.7 billion gallons of fuel being wasted in 2001 alone.[2]

The above mentioned low marginal addition of 1.5 percent new capacity is a reflection of growth in construction expense over time, the increasing demand for funds to maintain what we have, and competition for funding from other government programs.

The citizens of Columbus and Bartholomew County have been affected by these factors as well. The planned reconstruction of US-31 through the City of Columbus is an example of a response to the growth in vehicle miles traveled, while the current rate of road maintenance (four miles of streets repaved per year in a city with 270 miles of streets) illustrates the funding challenge.

Adding complication to the future transportation picture is population growth and demographic shifts. On October 16th, 2006 the population of the United States reached the 300 million mark. Less than thirty years earlier in 1968 the nation reached the 200 million mark. The 400 millionth American is expected in 2037. The next 100 million Americans will be very different from the last 100 million. The elder population (over 65 years of age) will account for over forty percent of the next 100 million, currently they are less than fifteen percent of the total population. The next 100 million will also bring more diversity with regards to ethnicity and race. Further complicating the situation are the current health trends with regards to body weight.

Population growth accompanied by major shifts in population composition will bring with it shifts in the type and quantity of housing and transportation demand. Meeting these challenges requires planning. As in any endeavor, failing to plan is planning to fail.

Introduction

The 2000 Census recorded a population of over 50,000 persons for the Columbus Urbanized Area for the first time. This triggered an automatic change in the transportation funding picture for the metropolitan area, which included the federal requirement to form a Metropolitan Planning Organization (MPO). The Columbus Area Metropolitan Planning Organization was formed in 2004.

Major inputs to this plan include the 1975 Transportation Plan, the 2003 Thoroughfare Plan Update, the People Trail Master Plan as well as the City and County Comprehensive Plans.

Eight Planning Factors

The seven planning factors of the Transportation Equity Act for the 21st Century (TEA-21) have been turned into eight planning factors under the latest Transportation Bill (SAFETEA – LU). The Columbus Area Metropolitan Planning Organization is required to address these eight factors in its planning process.

1. *Support the economic vitality of the metropolitan planning area, especially by enabling global competitiveness, productivity, and efficiency.*

2. *Increase the safety of the transportation system for motorized and non-motorized users.*

3. *Increase the security of the transportation system for motorized and non-motorized users.*

4. *Increase the accessibility and mobility options available to people and for freight.*

5. *Protect and enhance the environment, promote energy conservation, and improve the quality of life.*

6. *Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.*

7. *Promote efficient system management and operation.*

8. *Emphasize the efficient preservation of the existing transportation system.*

These eight factors reflect the broad issues dealt with in the federal multi-modal transportation planning process.

Goals and Objectives

The 2008 – 2035 Transportation Plan has two major objectives, which are derived from the eight planning factors. The first is to preserve the high degree of mobility that the citizens and businesses of the region have enjoyed thus far. The second is to add depth to the transportation infrastructure to provide a broader range of mobility options.

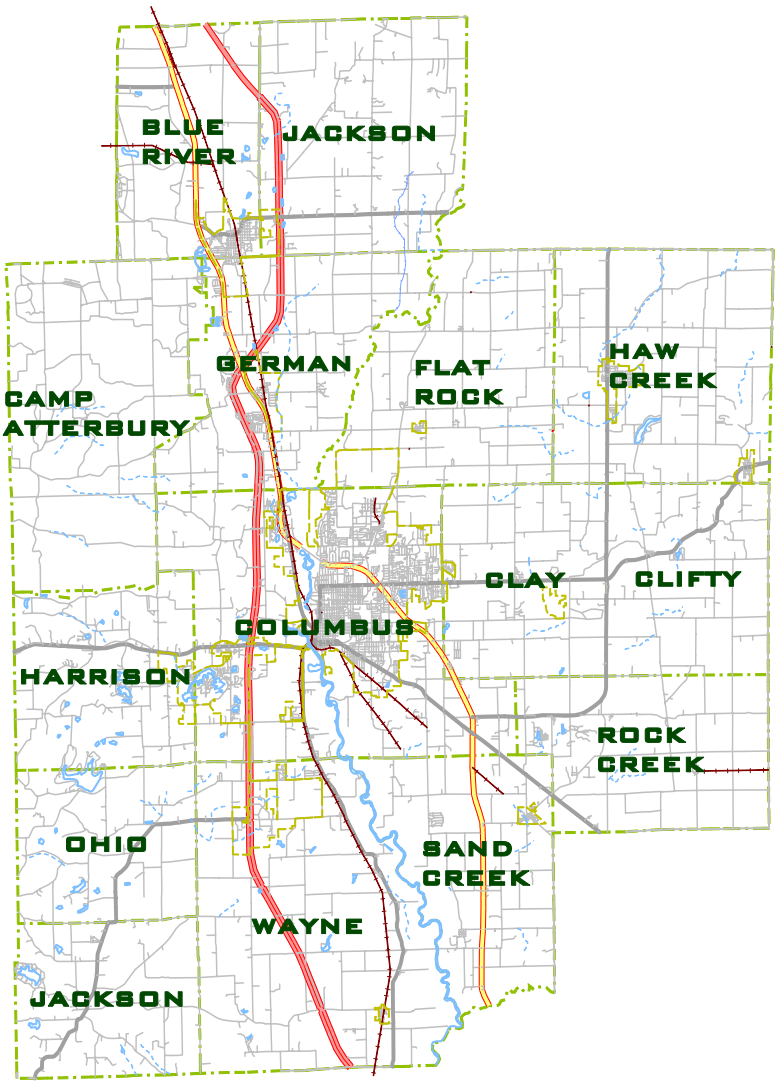
In Columbus, "many paths lead to Rome." In other words, the City's network of arterial and collector streets provide multiple choices for both north/south as well as east/west movement through and within the city. This network of roads has given the citizens of Columbus a flexible road system with high capacity, which in turn has resulted in low levels of congestion. As noted during the City's Comprehensive Plan development process, low levels of congestion are directly associated by the citizenry with the small town feel of Columbus.

Within the last twenty years urban development has reached beyond the traditional core of the city. Examples of this include the Tipton Lakes area and growth along CR 200S. In these areas, "many paths do not lead to Rome." Movements to and from these outlying areas are limited to a small number of roads, and flow mostly over the 2nd and 3rd street bridges when coming to town. This weakness was noted in the 1975 Transportation Plan as well as by travel demand modeling performed by INDOT for their current 25 year plan. Growth in these new areas is in accordance with the comprehensive land usage plans of the city and county. In keeping with the first objective of this plan (preservation of mobility), river crossing capacity and the road network in the Tipton Lakes and 200S area will be a major emphasis area for the MPO in the next quarter century.

In the early 1929 when Clessie Lyle Cummins crossed the United States on $11.22 of diesel fuel, the biggest issue he faced was a lack of connectivity. Simply stated, there was a lack of a functional road network. Just over seventy years later, the Interstate System envisioned under President Eisenhower is two miles short of completion, providing coast to coast connectivity. The situation in Columbus mirrors this. Our road network is well developed with a high degree of connectivity, enabling the automotive public a high degree of mobility. This takes care of the mobility needs of approximately two thirds of our population. The other third, either because of age (too young or too old), physical condition, or socioeconomic status is unable to drive an automobile. The non-motorized participants in our transportation system face the same problem Clessie Lyle Cummins faced in the 1930s, a lack of connectivity. The second objective of this plan is to add depth to our transportation infrastructure in order to provide connectivity (and thus mobility) for the remaining one-third. Further supporting this second objective are the uncertain future of energy costs, increased wage pressure from international competition, requirements of the Environmental Protection Agency's Clean Air Act, health and weight trends, and an aging population.

Planning Area

The MPO planning area consists of Bartholomew County, Jackson Township in Shelby County and Blue River Township in Johnson County.



Planning Inputs

The primary reason for planning is to make decisions today that will serve us tomorrow. Transportation planners must process information from multiple sources in order to provide actionable information to decision makers. The inputs used for transportation planning include projected data, such as future demographic data, as well as factual data, such as the location of flood plains and Census data. This section will discuss the data that supports this plan.

Comprehensive Land Use Planning

The Columbus / Bartholomew Planning Department is responsible for comprehensive planning for the City of Columbus and Bartholomew County, which represents the majority of the planning area of the MPO.

For several reasons, the Comprehensive Plans of the City of Columbus and of Bartholomew County serve as primary inputs to the CAMPO Transportation Plan. First is the public input process and planning history that underlies the two plans. The first Comprehensive Plan for the City of Columbus was adopted in 1953 and for Bartholomew County in 1958. Both plans have been through updates in the interceding years. Plan updates are subject to a robust public input process. This public input as well as a nearly fifty years of planning history results in a high degree of "buy-in" to the plans, and lends legitimacy to the Goals and Policies expressed in the plans. Second is the guidance that the Comprehensive Plans provide regarding future growth patterns. Based upon the Goals and Policies sections of the two comprehensive plans as well as analysis of the geography of the county, maps of desired future land uses were made. The transportation projects in this plan are supportive and aligned with the future growth patterns of the area as shown in both comprehensive plans.

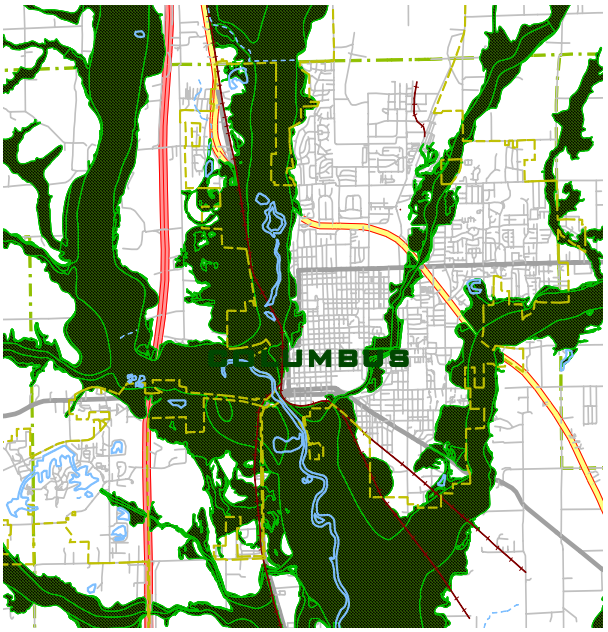
As a general rule, the desired future land uses of the Comprehensive Plans are supportive of the goals and objectives of this Transportation Plan. One area of minor conflict does exist; this is the US-31 corridor north of Columbus and south of Taylorsville. The comprehensive plans call for residential growth between I-65 and US-31. I-65 and US-31 are physical barriers to providing a supporting road network for residential growth in this area, which results in subdivisions in this area connecting directly to US-31. As the amount of access provided to US-31 increases, the mobility provided by US-31 will decrease. The linear nature of the growth in this area results in a leapfrogging effect within the functional classification system; in this case streets classified as "local" feed directly onto a principal arterial, with no streets of supporting classifications such as collectors and minor arterials. Urban growth of a linear and

isolated nature instead of concentrical and congruent generally results in conflicts with sound transportation planning practice.

Topography & Delivery of Urban Services

As stated in the Comprehensive Plans, the patterns of development within the planning area have been significantly influenced by the areas topography. The portion of Bartholomew County to the east of Columbus is relatively flat and consists of agricultural lands. This has been designated in both comprehensive plans as the agricultural reserve area with the goal of maintaining this area primarily for farming. The soils in this area are less conducive to the placement of septic fields and there are no sewage service providers in this area.

The urban core of the city has been strongly influenced by the rivers and creeks running through and adjacent to it as well as by their associated flood plains. The Flatrock River, East Fork of the White River, Driftwood River and Clifty Creek have provided natural barriers to the urban growth of the city. This has resulted in the growth of the city to the Northeast as well as provided impetus for the non contiguous growth of the city in the Tipton Lakes and 200S areas. In this accompanying graphic, the DNR floodplains / floodways are the green shaded area.



The southwestern portion of the county consists of rolling hills which are not conducive to agricultural use. This has resulted in substantial residential development ranging from the planned development at Tipton Lakes to the subdivision of larger lots by individuals. The topography here and availability of sewage services will lead to continued development in the aforementioned patterns. The rolling hills of the southwest portion of the county have also affected the road network, which is not always in the traditional grid pattern.

Demographic Data & Trends

Demographic data gives transportation planners insights into the travel needs and characteristics of the public. It provides an indication of driving eligibility and capability as well as indications of the nature of travel. For example, an at home parent taking care of the household has different driving patterns than a parent working an office job.

The Columbus Metropolitan Statistical Area (MSA) had a population of 71,700 according to the 2000 Decennial Census. The population is expected to grow by over 20,000 by the year 2030 to a total population of 93,300.

The growth in population between 2000 and 2030 will be accompanied by shifts in the population distribution. The Columbus MSA, like the rest of the nation, will experience growth in its senior citizen population, not just in absolute numbers but as a percentage of the population.

The population under nineteen years of age will grow slightly from 29 percent to thirty percent of the total population.

	2000		2030	
Age 0 to 19	20,570	29%	28,440	30%
Age 20 to 64	42,460	59%	49,340	53%
Age 65 and over	8,670	12%	15,520	17%
Total population (thousands) ...	71,700	100%	93,300	100%

Source: Woods & Poole Economics [3]

The starker shifts in population will be in the ethnic makeup of the population of the Columbus MSA. Both the Asian and Hispanic populations are going to quadruple in their percentage representation of the local population. In absolute numbers the white population of the area will grow just slightly from 67,130 to 74,400, however as a percentage will decrease from the year 2000 level of 94 percent to fewer than 80 percent.

	2000		2030	
White population	67,130	93.6%	74,410	79.7%
Black population	1,450	2.0%	4,080	4.4%
Native American population ...	110	0.2%	160	0.2%
Asian/Pacific Islander pop ...	1,410	2.0%	7,670	8.2%
Hispanic population	1,610	2.2%	6,980	7.5%
Total Population (Thousands) ...	71,700	100%	93,300	100%

Source: Woods & Poole Economics [4]

The percentage decrease of the population between twenty and sixty-four years of age is a result of the baby boomer generation entering retirement as well as the increased life expectancy that advances in health care have brought. While this percentage shift has important implications for the transportation picture in 2030, relative to the rest of the nation we are maintaining a higher ratio of young to old people.

The following chart shows that in the year 2000 the Columbus MSA was ranked 194 of the 362 MSAs in the nation for percentage of population over sixty-five years of age. By 2030 the Columbus MSA will be ranked number 266. The region also reverses the previous downward trend of the under eighteen years of age population, ranking 17th by 2030 for this population group. In the table below, the number in parentheses represents the ranking of Columbus among the 362 MSAs nationwide.

	1970		2000		2030	
Percentage of pop age 0 – 17	38%	(47)	27%	(103)	28%	(17)
Percentage of pop age 65 +	7%	(286)	12%	(194)	17%	(266)

Source: Woods & Poole Economics [5]

Employment Trends

In 1970 over 50% of all jobs in the Columbus MSA were in manufacturing. This percentage decreased to 43% in 1980, and has stabilized at 33% percent since 1990. A small decrease in this percentage to 29% is expected by 2030. Among the 362 MSAs nationwide, the Columbus MSA has always ranked in the top ten for percentage of jobs in manufacturing. In 2030 the Columbus MSA is expected to rank number four in this category. As in the previous chart, the ranking is in parentheses.

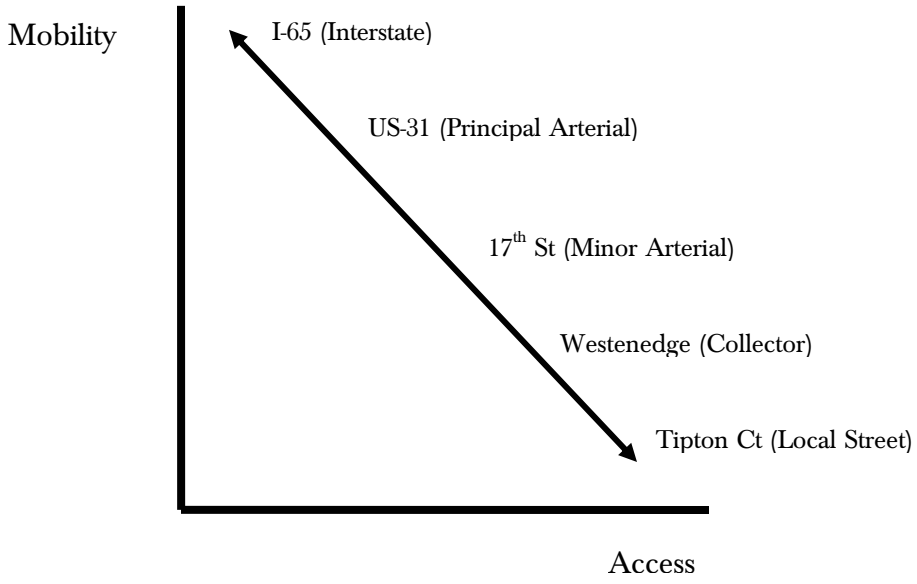
	1970		1980		2000		2030	
Manufacturing	50%	(3)	43%	(3)	34%	(5)	29%	(3)
Services	11%	(347)	13%	(344)	21%	(341)	29%	(344)
Farming	4%	(188)	3%	(161)	1%	(194)	1%	(161)
Government	9%	(352)	12%	(297)	11%	(292)	11%	(297)

As was the case in 1975, there are still a relatively high number of people commuting to the Columbus MSA for employment. This was attributed in the 1975 Transportation Plan to a housing / employment mismatch, i.e. a shortage of suitable housing for the workforce. However; in light of the fact that the Columbus MSA offers a broad range of housing options, from manufactured homes costing less than $25,000 to lakeside mansions, a housing / employment mismatch is likely not the only factor leading to these commuting patterns.

An additional reason for the relatively high number of commuters to the Columbus MSA for employment is the number of quality employers located within the CAMPO MSA. The city (which includes Woodside and Walesboro Industrial Parks) has an unusually high concentration of world class manufacturers. Further adding to this exterior draw from surrounding counties is the very southerly location of these industry parks.

Functional Classification System

Different roads serve different purposes. The Federal Highway Administration requires the classification of roads based upon their function. As we change from one functional classification to the next, we make trade offs between mobility and access. As the amount of access allowed to a road increases, mobility decreases, and vice versa. Closely associated with the concept of access versus mobility is also the concept of trip length. The less access provided the higher degree of mobility a facility can provide and in turn the longer trip lengths the facility can support. The following graph depicts the access versus mobility relationship.



The concept of access versus mobility can be better understood when illustrated. Interstate 65 represents the highest degree of mobility and the lowest degree of access. In other words you are very mobile due to the high speed and long distances you can travel while at the same time you cannot access the adjacent land from the Interstate except at interchanges. A street like Tipton Court (a cul-de-sac serving just a few homes) represents the lowest degree of mobility but the highest degree of access. On Tipton court you can only travel a very short distance at a very low speed, with the only purpose of driving on the court is to access (i.e. get to) the residences located there.

Functional Class & Capacity

Every motorist understands the capacity reducing nature of access provision; what motorist can say that they have not been forced to reduce speed due to a vehicle entering the road in front of them? If you are traveling slower, your trip takes longer. Slower traveling vehicles result in fewer vehicles per day per lane; which is a loss of capacity.

Why do we need to classify our roads? We classify roads in order to provide road facilities of different functions to efficiently move vehicle trips of varying length. Additionally, the functional classification system helps us to decide "where to put places" and conversely to decide what kind of road facility to put next to existing places. Land use planning and transportation planning can only function effectively, when they work together.

Roads of different functional classifications serve to support one another, and should ideally feed into one another sequentially. For example, a local street usually connects and feeds into the next higher functional class, a collector. The collector in turn connects and feeds into the next higher functional class, a minor arterial, and so on. Skipping of functional classes does happen, but preferably is limited to a skip of one class. An example of skipping would be a local street connecting to a minor arterial

Functional Class & Facility Design

The physical design of a transportation facility is directly linked to it functional classification, with the classification being assigned in accordance with the desired function of the facility. Higher classified facilities are designed to support trips of greater length than facilities of lower classifications. In addition to functional class, the surrounding context plays a role in the design of a road. Is the road in an urban, suburban or rural area? What is the adjacent land use? Is it commercial or residential? Exact details of road physical design and its relation to the physical context are defined in the City Thoroughfare Plan for the City of Columbus.

The following table shows the nine different highway functional classifications. The first seven of which comprise the system of roads supported via the Federal Aid process.

	Rural	Urban	Examples
Interstate	X	X	I-65
Freeway / Expressway	X	X	na
Principal Arterial	X	X	SR 46 / US 31
Minor Arterial	X	X	25th St / Taylor Rd
Urban Collector		X	22nd St / McClure
Major Collector	X		CR 550 N
Minor Collector	X		CR 400 W
Local street		X	Pearl St
Local road	X		Church St in Clifford

In keeping with the second major objective of this plan (adding depth to the infrastructure), the link between classification and design will be extended to include not just automotive needs, but also transit and non-motorized forms of transportation. Details of this can be found in the City of Columbus Thoroughfare Plan.

Individual Motorized Transportation

1975 Transportation Plan Projects

The 1975 Plan predicted travel demand to the year 1995; identified weaknesses of the areas transportation network based upon the then current and expected future travel demand, evaluated and then proposed solutions to these weaknesses.

The following is a summary and status of the projects proposed under the 1975 Plan. All discussion uses the current street names and not those from 1975.

As the following review shows, the 1975 Transportation Plan served the citizens of Columbus and Bartholomew County very well. The degree to which it was implemented speaks for both the quality of the plan as well for the job well done by those who implemented it.

National Road (US-31)

Increase to four lanes from the Flatrock River to 10th Street, including intersection improvements for turning movements.

1975 Justification: Anticipated 1995 traffic volumes due to employment growth at airport.

2005 Justification: Current traffic volume due development of 31 corridor within city limits.

Status: Scheduled for 2010, a Major Moves project.

10th Street

Reconstruction to four lanes between Central Avenue and US-31, to include constructing a second bridge over Haw Creek as an easterly extension of 8th Street.

1975 Justification: Provide relief to east-west traffic on 25th Street.

Status: Completed.

Central Avenue

Reconstruction of Central Avenue to a four-lane street from the Cummins Central Engine Plant (CEP) to Bakalar Airport with left turn lanes at major intersections.

1975 Justification: Accommodation of north-south traffic movements between employment centers located at either end of Central Avenue.

Status: Completed.

Gladstone Avenue

Construction of a forty foot wide urban arterial with limited upgrading of existing roadway between 11th and 17th Streets.

1975 Justification: Addition of continuity to the eastern city street system and provide accessibility from a new compass direction to the regional hospital.

Status: Completed.

Regency Drive

Two lane extension of Regency Drive west to Taylor Road.

1975 Justification: Provide local service to neighborhood south of 25th Street. Decrease of turning conflicts at the intersections of Taylor and Marr with 25th Street.

Status: Partially completed.

Note: Regency is currently built to urban collector standards in accordance with the 2003 Thoroughfare Plan standards. Stub streets are provided for eventual connection to 25th Street on its northeastern end as well as on its southwestern end for eventual extension to Taylor Rd.

Taylor Road

Southern extension from Sandy Hook Church connecting to US-31 and 10th Street. Northern extension from Rocky Ford Rd to Marr Road.

1975 Justification: Provision of north-south travel capacity in the eastern portion of Columbus.

Status: Completed.

Bakalar Road

Two lane extension of an existing east-west Bakalar Airport Road to Marr Road.

1975 Justification: Provision of accessibility to the airport from the north and east. Diversion of traffic from Middle and Rocky Ford Roads to eliminate congestion on each street.

Status: Completed along different alignment.

Southern Parkway

A recommended four lane limited access arterial connecting State Road 46 (at Jonesville Rd intersection) and State Street at Indiana Avenue. The parkway would have been located south of the current sewage treatment facility behind City Hall.

1975 Justification: Provides necessary and additional capacity to bridge crossings of the White River.

Status: A second crossing was added with the building of the Second Street Bridge. The parkway concept was not implemented.

Road 400N

Upgrading of Road 400N to a wider two lane arterial road in concert with improvements to north Central Avenue.

1975 Justification: Provide immediate relief to congestion on National Road, accessibility to Bakalar Airport. Eliminates three miles of travel for those traveling from the northwestern part of Bartholomew County.

Status: River Road was extended to CR 550N instead, with provision of lighted signals at the intersection of 550N and US-31.

Indianapolis Road

Improvement of Indianapolis Road to four lanes north and south of Columbus.

1975 Justification: Anticipated industrial development northwest of Columbus.

Status: Indianapolis Road leading north from downtown connecting into US-31 (former US-31A) has been relinquished by INDOT to the City. Passing blisters have been added to the road by the entrances to the industrial parks.

US-31 south of Columbus has been improved, but not to four lanes.

State Street

Widening to four lanes from 10th Street to Gladstone to Road 525E

1975 Justification: Projected growth of nonresident Bartholomew County travelers on State Road 46 and residential development immediately southeast of Columbus.

Status: State Street has been widened from Central Avenue to just east of Marr Road. Major residential development has not taken place to the southeast of Marr Road.

State Road 46

Improvement to four lanes from Road 590W to I-65.

1975 Justification: The now Tipton Lakes area was projected in 1975 to be the fastest growing area of Columbus between 1975 and 1995. This was road capacity required to handle the growth.

Status: State Road 46 has been improved to four lanes from 325W to I-65.

Road 100S

Improvement and new road addition from Jonesville Road to Carr Hill Road.

1975 Justification: Added capacity to accommodate anticipated growth southwest of I-65 and State Road 46.

Status: Not completed.

Road 200S

Extension of Road 200S west from Road 400W to Road 475W. Extension of Road 200S east from Jonesville Road across the White River to the intersection of Gladstone and Marr Road in East Columbus.

1975 Justification: White River crossing capacity to accommodate the growth southwest of Columbus.

Status: Not completed.

Road 475W

Two lane extension from Road 100S to State Road 46.

1975 Justification: Accessibility improvement to the "southwestern" growth area from the north and west.

Status: Not completed. Terrace Lake Road was improved from 200S to Goeller Road.

Interstate 65 Interchange

Construction of a diamond interchange at I-65 and 200S.

1975 Justification: Diversion of inter-county trips from Jonesville Road.

Status: Not completed.

Note: This is the only major mistake to be noted in the 1975 Transportation Plan, as it would serve divert local traffic onto I-65. This use of the Interstate for local traffic would not be in keeping with its purpose in accordance with its functional classification.

1975 Transportation Plan Review

A comparison of the actual average daily traffic (ADT) for 1995 and the predicted ADT from the 1975 plan revealed that the 1975 predictions were very accurate. However the basis for the estimations was incorrect. The estimated population for the city and county were overly optimistic. The high estimate for population was 82,000 while the low estimate for population was 76,000. Actual 1995 population was 68,410. Industrial employment was also overestimated as a percentage of the areas workforce at 50 percent. The actual percentage was a constant 33 percent throughout the 1990s.

The likely compensating factor for the overestimation of population was the underestimation of the personal vehicle miles of travel, which grew rapidly in the time period the 1975 plan covered.

The majority of proposed projects in the 1975 plan were implemented. The high degree of connectivity and mobility within central Columbus today is a result of this. Two major themes of the 1975 plan were not implemented. The first is the issue of connectivity for the growth areas southwest of the central city as well as connectivity from Central Avenue to the northwestern portion of the county. Connectivity to the southwestern portion of the City still remains a challenge today, one that this plan addresses.

The 1975 Transportation Plan was uni-modal in nature. Neither transit nor non-motorized transportation was addressed in the plan. When viewed from a historical perspective, this is logical. During the 1970s connectivity and capacity for automobiles was the major focal point.

The 1975 Transportation Plan was well planned, written, and subsequently executed.

Vehicle Miles Traveled Trends

The 1975 Transportation Plan underestimated the growth in vehicle miles of travel that took place from 1975 to present. What factors lead to this underestimation and will personal vehicle miles traveled continue to grow?

From 1975 to 2000 the average annual vehicle miles traveled per licensed driver grew from approximately 10,000 miles per year to approximately 15,000 miles per year. Per capita vehicle ownership also grew in the same time period from approximately 0.6 to approximately 0.8 in the same time period. Both per capita annual vehicle miles traveled as well as per capita vehicle ownership rates have shown no growth since the year 2000. In other words, on a per capita basis, the demand for automobile travel has peaked. Future increases in the amount of traffic on our roads will most likely be the result of population growth and not as a result of the growth in individual travel by automobile[6].

The cost of traveling has two components. The first is what we actually pay (out of pocket dollar costs) and the second is the opportunity cost related to travel time. The lower travel costs brought to the public by increased reliability and comfort, and decreased purchasing costs relative to income associated with the automobile appear to have leveled off. At the same time, future capacity additions to our nation's road network will be limited, yet the population of our nation is growing. According to estimates of the United States Census Bureau, the population of the United States is expected to increase from the current 302 million people to over 400 million by 2050. Taking all of this into account implies that at a minimal, the time opportunity costs associated with driving due to increased congestion will increase. Whereas most Americans do not want to spend more time behind the wheel of their car, this in turn implies that the demand for other forms of transportation will grow. People will spend a larger portion of their transportation time budget elsewhere, if it is not well spent in the automobile. Rises in energy costs could further increase demand for non-automotive transportation.

Future Urban Growth

The Columbus MSA is expected to add nearly 20,000 persons to its population by the year 2030. This equates to 8,720 households at the current average household density of approximately 2.4 persons per household. Using current percentages, 54% of these additional households would be added to the City of Columbus, while the remaining 46% would be within the towns and unincorporated portions of the county. Based upon a current density of 2.35 persons per acre within the city limits, this represents an addition of 4,963 acres of urbanized area to the current 16,640 acres that the city currently encompasses. The density factor used accounts for housing and all related services. The southwest portion of Columbus (Tipton Lakes and 200S areas) as well as the northeast portion of Columbus will accommodate the majority of the city's growth and continue to be the fastest growing areas of the city.

Characteristics of Current Network

The road network of the Columbus Area is highly developed, offering a high degree of connectivity and capacity. The grid system of the county roads is mirrored on a micro level within the City of Columbus by the principal arterials, minor arterials, and collectors. The principal arterials, minor arterials as well as urban collectors are generally oriented on north – south as well as east – west axis. The spacing and placement of these enables all residences and businesses to be within a short drive on local streets to a collector or arterial.

Reinforcing the strength of the grid system is the round urban form of the City of Columbus. Travel within Columbus is not dependent upon any single arterial or collector. In other words, the greatest strength of the City's road network is that "many paths lead to Rome." This provides not only a large capacity but leads to a natural dispersion of the traffic, which in turn has resulted in a relatively high level of service.

The urban core of the city has reached a size where growth in outlying areas has become an attractive and necessary alternative. Examples of this include the development around 200S such as Shadow Creek Farms and the Tipton Lakes area farther to the west. These outlying areas currently do not have the same degree of connectivity and duplicity as central portions of Columbus, i.e. many paths do not lead to Rome. This is due to natural and man made barriers. The East Fork of the White River runs to the east of Jonesville Rd, which has created a natural barrier to the connections of the county road grid system. Currently all residents of these two growing outlying areas either have to drive over the Second Street Bridge or the river crossing at 450S in order to reach to city core.

North – South movements are also limited to Jonesville Rd, Carr Hill Rd and Terrace Lake Rd. The use of Jonesville Rd by the above mentioned newer residential development further exasperates the already poor connectivity of the Walesboro area via this road.

Northeast Residential Growth

Growth in the northeastern portion of Columbus is in accordance with the city's Comprehensive Plan. This includes the areas east of Talley Road and north of 25th Street, as well as north of Rocky Ford to approximately the 350N level. Columbus Utilities is currently working to add capacity to this area of this city. Once Columbus Utilities completes this project, significant residential subdivision is expected to take place in this area. The only obstacle is the flood plains of Haw Creek and Haw Creek itself as one goes farther north.

This growth will put increased demands upon Rocky Ford, Talley Road, Taylor Road and 300N as well as eventually 350E.

200 S and Tipton Lakes Residential Growth

The topography of the Tipton Lakes area is reflected in its road network. It does not follow the traditional grid pattern of the rest of the Columbus urbanized area, which consists of relatively straight roads oriented north / south and east / west. The roads in the southwest portion of Bartholomew County tend to instead follow the hilly terrain of this area. This is because road building used to be predominately based upon the path of least resistance. The land in this area is not conducive to agricultural uses and thus has been subdivided for residential use. Much of the area has been subdivided by individuals and not by professional developers, resulting in a lower density of development.

The continued growth in these areas, in particular in the 200S area, is going to put additional strain on the already sparse road network serving this area. Residents of Shadow Creek Farms have two options when traveling to downtown Columbus. The first is Jonesville Road and the second is taking 200S west one mile to Terrace Lake Road and then taking Carr Hill Road to Jonathan Moore Pike.

The Second and Third Street Bridges are projected to be at service level F by 2030 according to travel demand modeling conducted by INDOT.

Road Projects – Group II STP Funded

The major road projects for the 2008 – 2035 Transportation Plan are either complementary to the plans as executed under the 1968 Thoroughfare Plan, the 1975 Transportation Plan and the 2003 Thoroughfare Plan, or represent the completion of earlier plans.

The following lists those projects that either will be funded with Group II Surface Transportation Program funds of the MPO or are eligible for these or other federal funds and will be accomplished as funding becomes available.

Prio	Street	Recommended Improvements
P	Rocky Ford Road	Added travel lanes from Marr Road to Taylor Road
P	Marr Road	Reconstruction from 1700 feet north of Rocky Ford to 300N
P	200S	Reconstruction from SR11 to 150W
P	17th Street	Added travel lanes & Bridge Rehab from Central Avenue to US-31
1	Carr Hill Road	Reconstruction from Terrace Lake Rd to I-65
1	Taylor Road	Reconstruction from 25th St to Rocky Ford Road
1	Westenedge Drive	Reconstruction from US-31 to Rocky Ford Road
1	Indiana Avenue	Reconstruction from State Street to Marr Road
1	Rocky Ford Road	Added travel lanes from Taylor Road to Talley Road
2	Talley Road	Reconstruction from 25th Street to Rocky Ford
2	150W	150W extension from 200S to Carr Hill Road
2	200S	Extension from Jonesville Rd (SR11) to Gladstone / Marr Intersection
2	Washington Street	Reconstruction from 11th to 25th
2	Rocky Ford Road	Reconstruction from Washington Street to Central Avenue
3	Washington Street	Reconstruction from 25th Street to US-31
3	Carr Hill Road	Reconstruction from 475W to Champion Dr
3	Carr Hill Road	Reconstruction from Champion Dr to Terrace Lake Rd
3	Carr Hill Road	Reconstruction from I-65 to Morgan Willow Trace
4	Washington Street	Reconstruction from US-31 to Rocky Ford Road
4	Marr Rd	Reconstruction from State St to 17th St / US-31
4	Deaver Rd	Reconstruction from SR 11 to 175 W
4	25th Street	Reconstruction from Washington to Central Ave
4	300 N	Reconstruction from Taylor to Talley Road
4	Talley Road	Reconstruction from Rocky Ford to 300 N
4	Lowell Road	Pavement reconstruction from I-65 to Indianapolis Road
4	Middle Road	Pavement reconstruction from Parkside to Poshard Drive
4	McClure Road	Pavement reconstruction from 17th Street to McKinley Ave
4	Marr Road	Pavement reconstruction from 25th Street to Rocky Ford Road

4	Indianapolis Road	Add left turn lanes and passing blisters at major intersections
4	Goeller Rd	Pavement reconstruction from 350W to Oakbrook
4	Goeller Rd/Raintree Dr	Pavement reconstruction from Oakbrook to Country Club Road
4	McKinley Ave	Pavement reconstruction from Five Points to Marr Road

Projects with "P" priority have already been programmed. Projects with Priority 1 were selected as part of the 2005 Transportation Plan and are currently in preliminary engineering. Projects with the priorities 2 or 3 are projected to be funded within the time period of this plan. Priority 4 projects are ones that have been identified, however the current projected Group II STP revenue stream will not support. These are called illustrative projects in the terms of the Federal Highway Administration. It is important to note that the revenue projections of this plan are an estimate. Many factors can influence the future funding stream, such as the health of the economy and priorities set by Congress.

A detailed table showing the above listed projects and associated costs is available from MPO staff. Due to the physical size of this table (48" x 36"), it can neither be included in this plan nor posted to the web.

Project Prioritization Process

The basis of this plan and thus for prioritization of the Group II STP funded projects are the Transportation Plan objectives, which are based upon the eight planning factors of SAFETEA-LU, with particular emphasis on enhancement of integration and connectivity.

The street project prioritization list from the 2003 Thoroughfare Plan formed the starting point for project selection. This list was established and prioritized via a public input process as part of the Thoroughfare Plan development and local knowledge of the current and prior City Engineers. The list also includes carryover projects and concepts from the 1975 Transportation Plan and the 1968 Thoroughfare Plan.

This list was reviewed and prioritized via three separate formal meetings with a subset of the Technical Advisory Committee. This subset included the Columbus City Engineer, Bartholomew County Highway Engineer and a senior planning representative of the Columbus / Bartholomew Planning Department. In addition to these formal meetings, input and feedback was sought from three former City Engineers who were instrumental in and responsible for prior planning efforts. The arrived upon list of prioritized projects was then presented to, discussed and approved by the Technical Advisory Committee.

Following approval by the Technical Advisory Committee, the draft Transportation Plan and accompanying project list was presented in detail to the MPO Policy Board. Following the Policy Board meeting, the list was then presented to the public and input from the public was sought via the two open houses.

System Preservation & Maintenance

The expenditure of the Group II STP funds has been divided between preservation, preservation & capacity, and capacity projects. For the purposes of this plan, the following definitions apply.

Preservation Projects

The majority of streets within the MPO planning area do not currently meet modern design standards. Included within preservation projects are those additional design elements required to bring the facility up to current standards. Preservation projects do not involve green field activities or capacity additions, with the exception of adding width to those lanes that are currently too narrow to meet current standards.

Capacity Projects

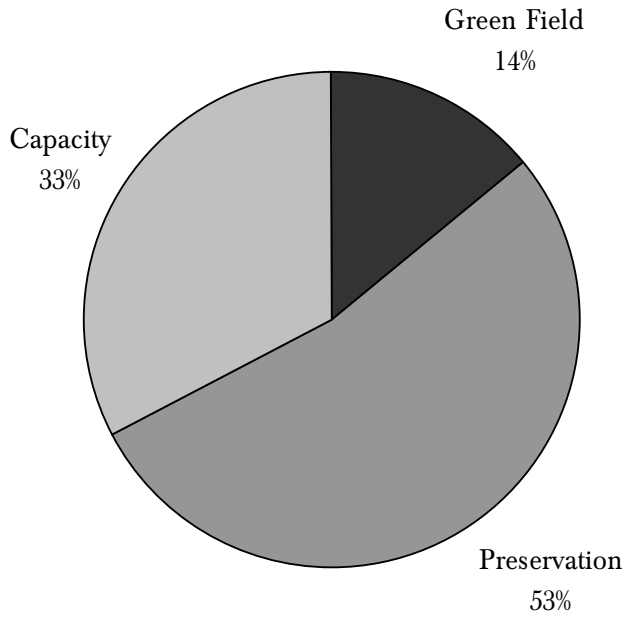
Capacity projects involve the addition of capacity changing elements to an existing facility. These projects can include things such as additional travel lanes and turning lanes. Widening of existing lanes will not put a project in this category.

Green Field Projects

These projects are those that involve new additions of capacity to the existing system along new rights of way. In other words, the building of a road where one does not currently exist.

Funding Allocation

The following chart shows the allocation of funds between the three above mentioned categories. The majority of funds is being dedicated to preserving and updating the current system.



Maintenance

Maintenance activities include but are not limited to activities such as crack sealing, slurry sealing, pot hole filling and overlay. These activities are funded mainly via the Local Road and Street Fund and partially through a portion of the Thoroughfare Fund. The source of funds for the Local Road and Street Fund is the state gas tax, a portion of which the city receives. The Thoroughfare Fund is funded by a portion of local property taxes.

After providing funds for the twenty percent match of the Group II STP funds, there will be approximately $6,414,259 of funds left over in the Thoroughfare Fund. The revenue for the Local Road and Street Fund is projected to be $5,460,000 over the next twenty five years. This assumes zero growth in the current revenues provided by the gas tax. Current revenue is $210,000 annually.

Combined, the Thoroughfare Fund and the Local Road and Street Fund will provide $11,874,259 for maintenance and upkeep.

Road Projects – Group IV STP Funded

Group IV funds of the Surface Transportation Program are for rural towns with a population under 5,000 and for use in the rural areas of counties, regardless of population. The MPO does not receive an annual allocation of these funds such as is received with Group II funds. Group IV funds are controlled by the central office of the Indiana Department of Transportation. These funds must be applied for under a competitive process.

The following list of projects represents those that if approved would be funded with Group IV STP funds.

Street	Recommended Improvements
200S	Pavement Reconstruction from Terrace Lake Rd to 400W
400W	Pavement Reconstruction from 200S to 225S
325W	Pavement Reconstruction from 200N to Lowell Rd
300W	Pavement Reconstruction from International Drive to SR 58
600N	From SR 9 to Clifty Elementary

CR 600 N is the highest priority for the County in the medium term. This project has been broken into four phases, with the majority of money spent on this project having been local funds. The final phase of this project is currently in design and federal funds for this last phase are being sought.

Road Projects – INDOT

The following projects are scheduled in the INDOT Long Range Transportation Plan for the Columbus area.

Funding Period 2006 - 2010

Rt	DES#	Project Description
I 65	0101101	Interchange reconstruction to add capacity, at I-65 & SR 58
US-31	9700230	3.94 miles of added travel lanes from Washington St to 10th St
SR 46	9902930	Median construction from Marr Rd to Mapleton

Funding Period 2011 - 2025

No INDOT Central Office capacity adding projects are scheduled in this time period for the CAMPO Planning area.

Funding Period 2025 - 2030

Rt	DES#	Project Description
I 65	0300862	Added travel lanes from SR 252 south to US-31

Illustrative Projects

These are projects INDOT would like to accomplish, should funding become available.

Rt	DES#	Project Description
SR 46	0500387	Added travel lanes from SR 9 east to SR 3
SR 46	0500266	Added travel lanes from I-65 west to SR 135
I 65	0401224	Added travel lanes from SR 46 north to US-31
I 65	0300883	Added travel lanes from SR58 north to SR 46
I 65	0300854	Added travel lanes from SR 252 north to SR 44
SR 7	0500401	Added travel lanes from US-31 south to North Vernon

Financial Resources Forecast

Group II Surface Transportation Program Funds

The Columbus Area Metropolitan Planning Organization receives an annual allocation of Group II funds from the Surface Transportation Program (STP). These are funds provided by the federal government to the states under the federal transportation bill, which are then in turn partially allocated to the MPOs in accordance with the INDOT/Local Federal Aid Sharing Agreement. Group II STP funds are for use within the urbanized area of the MPO.

This financial forecast assumes annual funding at the current rate of funding until 2007, with a minor increase annually from 2008 going forward. The table below includes the last of STP Group III funds that were awarded to Columbus prior to the forming of the MPO. This is done because both Group II and Group III funds are being used on the listed projects. A year by year listing of the projected Group II STP funding can be found as an appendix to this plan.

Fiscal Year	Spending Authority	Local Match	Total Funds
2003	1,166,805	291,701	1,458,506
2004	1,291,912	322,978	1,614,890
2005	1,293,621	323,405	1,617,026
2006	1,346,129	336,532	1,682,661
2007	1,546,712	386,678	1,933,390
2008	1,237,653	309,413	1,547,066
2009	1,237,653	309,413	1,547,066
2010 - 2035	44,074,000	11,018,500	55,092,500
Summ	53,194,485	13,298,621	66,493,106
Group III	3,679,700	919,925	4,599,625
Total	56,874,185	14,218,546	71,092,731

Other Federal Funding Sources

In addition to the STP Group II funds, there are other funding sources for accomplishing projects. These funds must be applied for and thus cannot be counted on for planning purposes. These include sources such as Transportation Enhancement Funds that have been used in Columbus in the past for the building of the People Trails and Group IV STP funds for the funding of projects outside of the urbanized area, yet inside of the MPO planning area.

Fiscal Constraint

Projected STP funding	$56,874,000
Projected Thoroughfare Fund funding	$14,218,000
Total	$71,093,000
Programmed projects:	$64,614,000
Difference	$ 6,479,000

Non-Motorized Transportation

Non-motorized travel for the purposes of this plan includes bicyclists, pedestrians and people confined to wheel chairs.

Base Conditions

Though many improvements to the non-motorized transportation infrastructure in Columbus are needed, the base conditions represent a solid foundation upon which to build. These base conditions are:

- Topography: The city is flat for the most part (lack of big hills)
- Urban form: The city is round, which minimizes point to point distances
- Growth: The city is relatively densely and contiguously developed
- Services (such as shopping) are dispersed throughout the city

These base conditions apply to the central part of the city, to the outlying development in areas such as Tipton Lakes, growth along US-31, or growth in the area of 200 S to a lesser extent.

Demographic Trends

Between 2005 and 2030 the number of non-motorized citizens will continue to grow both in absolute numbers and as a percentage of the population. The percentage of the MSA that is 65 and over will increase from twelve percent to seventeen percent of the population. This represents a 42% increase, in absolute numbers growth from 8,670 to 15,520 persons. This population group should be encouraged to live in areas where the appropriate transportation infrastructure is and will be available.

The percentage of population between the ages of zero and nineteen years of age will remain constant between 2005 and 2030, at approximately 30%; however in absolute numbers will grow from 20,570 to 28,440. This is represents a 38% increase.

Both the Asian and Hispanic populations are expected to quadruple by 2030. While it is impossible to predict mobility of a population group based upon ethnicity, several factors point towards our growing Hispanic population as being less motorized than other ethnic groups. First, not all of the immigration to our area is legal immigration, and it is becoming increasingly difficult for illegal immigrants to obtain a drivers license. Secondly many of our Hispanic immigrants came to America to seek greater economic

opportunity than was available to them in their homeland. Many of these immigrants do not arrive in the United States with the financial means to immediately be able to purchase and maintain an automobile.

Trends in physical health

It is widely known that the percentage of Americans overweight or obese has increased. An examination of the numbers shows just how rapid the rate of change has been and how large the problem has become. The following tables are data from the Center for Disease Control and Prevention of the United States Department of Health and Human Services.

Prevalence of obesity and overweight in adults age 20 to 74

	Overweight or obese (BMI 25+)	Obese (BMI 30+)
1976 to 1980	47%	15%
1988 to 1994	56%	23%
1999 to 2002	65%	31%

Obesity in Children (BMI 95th Percentile)

	(Ages 6 to 11)	(Ages 12 to 19)
1976 to 1980	7%	5%
1988 to 1994	11%	11%
1999 to 2002	15%	15%

The incidence of obesity amongst adults has doubled since the 1970 and tripled for adolescents. The American Obesity Association lists genes, environment and behavior as being the three main causes of obesity. Under the term environment both the American Obesity Association and the Centers for Disease Control list transportation as a contributing factor. In particular the rise in car ownership and an increase in driving of shorter distances are sighted.

Data from the 1995 National Personal Transportation Survey conducted by the FHWA reveals the numbers behind these short distance trips. One quarter of all trips made are one mile or less, forty percent are two miles or less, half are three miles or less and two-thirds are five miles or less.[7] Among children the trend towards fewer trips made by

foot or bicycle are similar. In 1969, 48 percent of students walked or biked to school; today less than 16 percent of students between the ages of five and fifteen walked or biked to school.[8]

One key to reversing these trends is providing an infrastructure that supports and does not discourage non-motorized travel.

Facility Types for Non-motorized Transportation

In the same manner that we make trade-offs between access and mobility when designing facilities for automobiles, the same principle applies to facilities for pedestrians and bicycles. The people trail as it runs parallel to Jonathan Moore Parkway provides a high degree of mobility and little access. The bike lanes to be installed as a part of the 17th Street Project will provide equal parts mobility and access.

Multi-use Trail

Large portions of the people trail system of Columbus consist of multi-use trails. Multi-use trails are grade-separated and tend to follow their own alignment. They can follow an existing street alignment, but then the issue of access to properties along the chosen alignment becomes critical. The portion of the People Trail running parallel to Jonathan Moore Pike between Tipton Lakes and Downtown Columbus is an example of a multi-use trail following an existing alignment. In this case, because there is no property north of Jonathan Moore Pike requiring access, placing the multi-use trail parallel to Jonathan Moore Pike functions well. Multi-use trails in Columbus have a width of ten feet. They also represent the safest form of facility for non-motorized citizens. Due to their emphasis on mobility and thus limited ability to provide access, multi-use trails can only represent a portion of the non-motorized transportation network.

Sidepaths

A sidepath is a wide sidewalk. Sidepaths in Columbus are eight feet wide. The word "side" in sidewalk and sidepath imply that this type of facility is found along the side of a street. Thus, sidepaths are grade but not alignment separated. Sidepaths are designed to carry both pedestrian and bicycle traffic. They work well where access to the properties adjacent to the street is limited. An example of this is Rocky Ford Road east of Central Avenue. This treatment can also be used along arterials where, due to limitations in available right-of-way, alternative facilities cannot be provided. The major drawbacks to a sidepath are that bicycles are likely to conflict with pedestrians, expected bicyclist behavior at intersections is unclear, and sidepaths tend to be on one side of the road which results in counter flow problems. Additionally, removing bicycles from the streets removes them from the traffic flow and thus mentally from the minds of automobile drivers. This can result in bicyclists being cut-off by automobiles at intersections as well as by automobiles accessing properties adjacent to the street.

Bicycle lanes

Bicycle lanes are a lane found in the street, just like the automobile lanes yet narrower. One might ask, "Why add a lane for bikes, the street already has lanes?" The answer to this question lies in the difference in speeds of automobiles and bicycles. When a bicyclist rides on a busy street where automobile traffic is flowing faster than a bicycle

can move, it can result in traffic backing up. This congestion caused represents a loss in through-put (how many cars the street can move in a given period of time) and thus a loss in capacity.

Bicycle lanes greatly reduce the conflicts between automobiles and bicycles, thus protecting road capacity for both forms of transportation. Bicycle lanes integrate bicyclists into traffic, which serves to raise the awareness level of automobile drivers to cyclists. Bicycles in bicycle lanes are easily integrated into current intersection design, and the expected behavior of a bicyclist in an intersection is predictable for automobile drivers.

Bicycle Routes

Bicycle routes are streets that have been appropriately marked with signage and street markings as bicycle routes. Since it is simply the designation of a street as a route, they are not grade or alignment separated.

A bicycle route is an appropriate treatment for local streets and on selected urban collectors. Since they are using their own muscle power to propel themselves, bicyclists have a particularly strong interest in taking the shortest routes possible. This is an important point to note when planning routes. In the older sections of the city, where the traditional grid pattern of streets exist, local streets are particularly well suited to being designated as bicycle routes. Modern subdivision design with its curving streets and cul-de-sacs seeks to discourage through traffic, thus local streets in the newer parts of the city often are poorly suited as bicycle routes. This disadvantage of modern subdivision design can be compensated for with pedestrian / bicycle connectors as was done in the Park Forest Estates and Sims Homestead Addition subdivisions. Here, foot paths are often provided between parcels along an easement (for example at the end of cul-de-sacs) in order to allow bicyclists and pedestrians more direct routes. In the above mentioned subdivisions, these connectors provide access to the People Trail System.

Local streets are particularly well suited for bicycle routes due to their function within the functional classification system. The primary function of a local street for automotive traffic is to provide local access. High degrees of access equate to a low degree of mobility and thus lower vehicular speeds. Reduced automobile speeds caused by bicycle traffic are not contradictory to the function of a local street.

Sidewalks

Sidewalks are grade but usually not alignment separated. Due to their narrow width, they are only appropriate for use by pedestrians and smaller children on bicycles. Even where bicycle lanes are provided, smaller children on bicycles should use the sidewalk.

Delineation

As the city progresses with the development of its network for non-motorized transportation, signage delineating which users should use which facilities will become more important.

Facility Types and Users

Different facilities are designed for different uses. Sidewalks are meant for non-motorized travel (with the exception of wheelchairs) while Interstates are meant strictly for motorized travel. Additionally, not all of the facilities that comprise our transportation network are classified under the Highway Functional Classification System. The following table lists the different facilities within the Columbus MSA and (as a general rule) their associated users.

	Pedestrian	Child on bike	Basic Adult Bicyclist	Advanced Bicyclist	Motorized Vehicles
4' Sidewalks	X	X			
8' Sidewalks	X	X	X	X	
Bike Route				X	
Bike Lane			X	X	
Multipurpose Trail	X	X	X	X	
Local Street			X	X	X
Minor Collector				X	X
Major Collector					X
Urban Collector					X
Minor Arterial					X
Principal Arterial					X
Freeway / Expressway					X
Interstate					X

Knowing which users can use which facilities will enable us to identify connectivity gaps in our transportation network for different users. As the MPO moves forward, these will be mapped in a GIS. The above facilities are not mutually exclusive; by combining the different facilities above mobility can be provided to all users of our transportation network.

Facility Plans

The future plans for People Trails (multiuse trails) are currently included in the People Trails Master Plan of Columbus Parks and Recreation. As of the time of writing of this plan, the MPO is engaged with a Citizens Bicycle and Pedestrian Committee to write a detailed Bicycle and Pedestrian Plan, which will be integrated into the MPO Transportation Plan and the City Thoroughfare Plan as appropriate.

In keeping with above matrices, pedestrian and bicycle facilities that are not multi-use trails will be installed with each project within the urbanized area of the MPO that involves a facility that is functionally classified above urban collector and below freeway / expressway.

Freight Transportation

The freight transportation picture consists of multiple components ranging from the delivery of bulk commodities per railcar to the overnight guaranteed on-time delivery of documents. The Columbus MSA is well situated with respect to freight transportation infrastructure, providing a wide range of transportation connectivity options for industry.

Truck

The location of the Columbus MSA along Interstate 65 makes the area easily accessible for trucking. An hour to the North, Interstate 65 connects to I-74, I-69, and I-70 providing alternative North – South as well as East – West connections. One hour south of Columbus I-65 connects to I-64 and I-71. Within the Columbus MSA there are three Interstate interchanges. Exit 76 at Taylorsville which also serves as a prominent location for less than truckload (LTL) provider facilities such as those of Con-Way Express. Exit 68 is west of downtown Columbus and is the primary exit for trucks serving the South Mapleton Industrial Park. Exit 64 is the third exit and serves Walesboro Industrial Park.

The presence of several major manufacturing facilities in Columbus has brought with it a large offering of trucking service providers. Several of the nations major (LTL) service providers maintain an office with cross-docking facilities in the Columbus Area. In addition to this there is an offering of local (non-national) trucking and warehousing service providers. The presence of I-65 and its accompanying large volume of freight traffic make the arrangement of truckload services uncomplicated as well.

Freight Rail

The delivery and pick-up of bulk commodities via railcar is provided to the Columbus Area by the Louisville and Indiana Railroad Company. The L&I is a short line railroad operating approximately 106 miles of line that runs North / South between Indianapolis and Louisville. The L&I connects to two Class I railroads, the Norfolk Southern in Louisville and CSX in Indianapolis. This connection to Class I railroads is positive for rail dependent industries seeking to avoid dependency upon one Class I railroad. The portion of the L&I line running from Indianapolis to Camp Atterbury has been designated by the Department of Defense as a part of the Strategic Rail Corridor Network (STRACNET).

The L&I moves 33,000 carloads annually, the equivalent of over 100,000 truckloads. 95 percent of the L&I's track exceeds FRA Class 2 track standards which allows for a maximum speed of 25 miles per hour for freight trains. Within the Columbus MSA

significant areas of activity for the L&I include the industrial area north of the Outlet Mall in Taylorsville, the rail yard to the west of Commerce Park, South Mapleton Industrial Park and Camp Atterbury.

The movement toward 286,000 gross weight on rail (GWR) rail traffic is a part of an effort of the rail industry to increase network efficiency. The nations class I railroads due to their size are able to fund the capital improvements required to achieve this. Short line railroads operate with much smaller budgets and often are not capable of funding the necessary upgrades to carry cars of this weight. This results in lost business as well as can be a disadvantage to economic recruitment efforts of communities along short lines. The L&I is currently not 286,000 GWR capable and most likely not in the position to fund the required investments to achieve this.

Intermodal

Intermodal freight refers to the movement of freight by multiple means within a transport chain. While there are multiple forms of intermodal traffic, most prevalent in the Columbus area is the movement of sea containers and truck trailers by rail and then truck. As a general rule, sea containers that have to be moved a distance greater than 500 miles from their port of entry are moved by rail. The sea containers are then transferred to trucks and delivered to their final destination. In the Columbus Area, there are multiple manufacturers that use imported products (in particular from Asia) as a part of their production strategy. Therefore the significance of intermodal traffic to the area is relatively high.

Columbus is located near three different intermodal rail yards. CSX maintains a yard in Indianapolis (one of 48 within their system), Norfolk Southern in Louisville, and both of these carriers have intermodal yards in Cincinnati. In addition to these intermodal yards, the multiple yards surrounding Chicago often serve as the transfer point to truck for cargo movements from the West Coast. This occurs because the U.S. rail network is divided into a western half and an eastern half, each dominated by two Class I railroads. Chicago is a bottleneck in the current rail network, and the short distance from Chicago to Columbus are two factors that encourage the movement of shipments from Chicago via truck and not rail.

Weaknesses

The current weaknesses of the freight transportation network within the MPO planning area are:

- The I-65 interchange at SR-58, which predominately serves the industrial activities of Walesboro and Woodside Industrial Parks. This interchange is currently operating above capacity and is not adequate for the future industrial growth that will be taking place in this area.
- The inability of the Louisville and Indiana Railroad to carry 286,000lb gross weight on rail traffic
- A lack of rail served industrial sites
- A lack of internal circulation patterns at the current industrial sites.

Mass Transportation

Bus Transit

ColumBUS Transit provides both fixed-route and demand response service. Fixed route service is provided on four routes within the central city. This provides 203,000 annual revenue miles of service for approximately 200,000 boardings.

In 2004 the Corradino Group conducted a Transit Route Study for Columbus Transit. This goal of the study was to examine the service being provided by the current system to the citizens in light of the growth of the city over the last decade.

The scope of work for the study included the following six main tasks.

- Review of existing conditions
- Public participation
- Data collection and route performance assessment
- Service adequacy analysis
- Service alternatives
- Capital needs

The study found no major deficiencies in the current system; however had several recommendations for minor changes. These included:

- Minor route modifications
- Relocation of the downtown transfer point
- Edinburgh Outlet Mall Service
- Evening / night employment service
- Improve route frequency
- Extend hours of operation
- Service on Sunday
- Change Saturday service hours

With the completion of the parking garage on 4th Street under the Vision 20/20 plan, the shuttle to the parking lot at Mill Race Park will no longer be necessary. This capacity will most likely be able to be used to establish a fifth fixed route without incurring new operating costs.

Transit Facilities

Not mentioned in the study by Corradino was the second transit transfer point located at the Office Max in Columbus Center shopping center. Currently the buses stop in front of the Target. ColumBUS Transit had been asked to move the buses away from the Office Max where they used to stop. In conjunction with ColumBUS Transit, a permanent location for the transit transfer point is currently being sought.

The second transfer point of Columbus Transit is found in downtown Columbus. In conjunction with ColumBUS Transit, a permanent location in Downtown Columbus is being sought that would be in keeping with Vision 20/20, the strategic development plan for Downtown Columbus.

Near term transit planning emphasis areas of the MPO will include the integration of appropriate transit infrastructure into future street projects (bus shelters, benches or signs), a multi-modal / transit transfer station serving downtown Columbus, and future route requirements based upon projected growth of the city.

Transit Operating Costs Funding Requirements

To operate the current system of four fixed routes plus demand response service, a total of $27,445,668 will be needed during the next quarter century. This does not take into account any growth in service required to cover future growth of the city.

SFY	5307	PMTF	Farebox	Local	
2005	552,082	201,578	43,000	229,500	
2006	563,124	205,610	43,645	234,090	
2007	574,386	209,722	44,300	238,772	
2008	585,874	213,916	44,964	243,547	
2009	597,591	218,195	45,639	248,418	
2010 - 2030	14,810,295	5,407,584	1,071,163	6,156,627	
Sum	14,810,295	5,407,584	1,071,163	6,156,627	27,445,668

Transit Capital Funding

When the Columbus Urbanized Area reached the mark of 50,000, this triggered a change in the classification of the transit system from small rural system to small urban system.

Without taking future growth of bus routes into account or growth in the unit cost per bus the following represents the minimal capital requirements for the next twenty-five years for bus acquisitions.

Number of bus routes	5
Life span per bus (years)	10
Years in Transportation Plan	25
Cost per bus (USD)	270,000
Capital required over 25 years (USD)	3,375,000

In addition to bus acquisition, FTA 5309 funding will be sought in the future to fund capital improvements such as bus shelters and the two transfer points.

Interstate Bus Service

Greyhound Lines, Inc. announced on May 20th, 2005 that service to Columbus will be discontinued as of the 21st of June 2005. The MPO in cooperation with ColumBUS Transit will explore the possibility of the return of inter-city bus service with the completion of the downtown transit transfer point. Besides Greyhound, Megabus.com is a second possibility.

Passenger Rail

Currently there is no passenger rail service for Columbus. In the recent past, Amtrak provided service between Louisville and Chicago under the name Kentucky Cardinal; however this service has been discontinued. This was a logical decision considering the rail line is limited to 30 mph service in accordance with its current FRA classification.

The Midwestern Regional Rail Initiative is a collaborative effort of nine Midwestern State Departments of Transportation to install high speed rail service to the Midwest in a hub and spoke format centering on Chicago. Under the plan, 3,000 miles of existing right of way would be upgraded to 110 mph service, the fastest allowed by the FRA without total grade separation.

The segment Louisville – Indianapolis was added to the study in 2004. As a part of the study, Columbus is included as the one stop between Louisville and Indianapolis for express trains due to it being approximately midway between the two cities and sharp curvature of the rail line within the city limits of Columbus that would force all trains to slow anyway.

This transportation plan cannot address the micro financial analysis of the MWRRI plan; however assuming that the financial analysis presented with the MWRRI plan is correct, then in the opinion of the MPO the following factors (from a macro perspective) in addition to the positive financial projections speak for the initiative.

Right-of-way

The plan recommends using existing rights-of-way to implement the plan. The Louisville – Indianapolis right-of-way is currently very lightly used and thus could be labeled as underutilized. From a business viewpoint, if there is an underutilized asset (the rail line) and at the Interstate running parallel to the rail line is nearing capacity, then the reactivation of the rail line for passenger rail is a logical consideration.

Topography & Alignment

The Midwest is flat and the rail lines that would be used are relatively straight. This means that the proposed 110 mph speeds can be obtained with relatively generic off-the-shelf technology.

Historical view

The original Interstate System as envisioned by President Eisenhower is complete. Capacity additions to the Interstate system do not have the same rate of return as the original installation did. Thus the rate of return of the MWRRI has the likelihood of being competitive with Interstate expansion proposals.

Financial Perspective

The projected financial ratios (revenue to variable operating costs) meet current FRA guidelines. The investment cost for the entire nine state system is currently projected at seven to eight billion dollars. The infrastructure investment costs for the Louisville – Indianapolis line is estimated at 333 million dollars. To make a comparison, the German Rail high speed rail line between Munich and Nurnberg is projected to cost over seven billion dollars. The difference in cost is due to the German project being a fully new right-of-way, and topographical / geological challenges involved in the German project. The MWRRI would provide a very large network for a comparatively low price since the right-of-way already exists.

Economics and Competitiveness

As Indiana seeks to move towards an advanced manufacturing / brain power driven economy, we need to ensure we have the infrastructure appropriate to the clientele we seek to cater to. Other advanced countries that are our direct competitors are investing heavily in the area of passenger rail.

Safety

With the passage of the current transportation bill (SAFETEA-LU) by Congress, the previous seven planning factors were made into eight planning factors. Safety and security used to be one factor; however have been made into two separate factors.

The safety of the citizens using all forms of transportation in the planning area of the MPO is the highest priority. Safety is best achieved via two approaches. The first is the microscopic approach of studying accident data to find out where and why accidents are taking place, which in turn enables transportation planners working with engineers to program projects to physically correct dangerous situations. An example of this would be the reconstruction of a dangerous street intersection. The second approach to safety in transportation planning is the macro approach, which involves providing an infrastructure system that minimizes safety related issues.

Crash Data Driven safety Approach

Every year the Office of the City Engineer assembles his annual Crash Report in cooperation with the Columbus Police Department. This focuses on mapping the crashes from the previous year in order to find any areas of the City that might require infrastructure improvements or increased law enforcement in order to reduce the accident rate. This is done annually, which provides trending data in addition to frequency related data.

In addition to the annual crash report, the MPO working in cooperation with the City Engineer, County Engineers and Police Department is creating a crash incident layer (based upon the State crash database VCRS) as a part of the MPO funded GIS improvements. This will enable a more active analysis of the crash data than is currently possible using a paper report.

Systematic Infrastructure Driven Safety Approach

In addition to the study of crash data, it is important for transportation planners to ensure that a big picture approach to safety is taken. Within the City of Columbus, safety of the citizens is further reinforced via the following measures:

- Sidewalks are a requirement of the subdivision control ordinance, ensuring that pedestrians are not forced to walk in the streets.
- Sidewalks and bike lanes are included in all MPO funded reconstruction projects, ensuring both pedestrians and bicyclists are integrated safely into traffic.
- The spacing of collector, minor and principal arterial facilities in accordance with FHWA standards has been maintained to the highest degree possible, ensuring adequate road capacity which in turn results in a low level of driver frustration.

- Traffic calming (in particular in the form of street widths) is being examined as a part of the City of Columbus Thoroughfare Plan update of 2007.
- Comprehensive Planning. The City of Columbus and Bartholomew County Comprehensive Plans are well thought out and ensure that various land uses are thoughtfully spaced and interspersed, resulting in reasonable travel distances which in turn lowers driver frustration levels.

Security

In developing this plan, MPO staff met with the Director of Emergency Management for Bartholomew County to discuss the role of the MPO as well as to exchange transportation related security concerns.

With the purchase of new vehicles for fixed route transit, which was partially funded by the MPO, each bus has been equipped with digital video systems.

Environmental Mitigation

The mitigation of the impacts of transportation projects on the environment is achieved through multiple means. The primary means is via the City of Columbus and Bartholomew County comprehensive plan and planning process.

Comprehensive Planning Goals

The Comprehensive Plans of both the City and the County include the following goals and policies relevant to environmental mitigation:

City of Columbus Comprehensive Plan

- Goal A-4: Promote wise and efficient use of limited resources and nonrenewable resources, including but not limited to capital and land
- Goal B-1: Maintain excellent water, air & land quality and protect the natural environment
- Goal B-2: Enhance open space to create sustainable recreational environment and wildlife environments and wildlife habitats
- Goal B-3: Develop a comprehensive network of natural areas to enhance and protect our fragile environment
- Goal D-1: Develop new housing where adequate public services can be provided economically
- Goal D-2: Encourage development of a sufficient supply of diverse housing types, sizes, and price ranges in the community

Bartholomew County Comprehensive Plan

- Goal 1: Preserve productive farmland and maintain the productive capacity for a strong county agricultural industry.
- Goal 2: Protect open space such as woodlands, flood plains, and wetlands for environmental, recreational, scenic, and life-style benefits
- Goal 3: Maintain rural neighborhoods, establish appropriate new neighborhoods, and revitalize rural towns and villages
- Goal 6: Ensure wise and efficient use of limited and non-renewable resources including but not limited to capital and land
- Goal 7: Maintain and enhance the quality of the water, air and land
- Goal 10: Reduce flooding and flood damage
- Policy 10-A: Encourage building to take place outside of the flood plain
- Policy 10-C: Prevent filling within the floodway
- Goal 11: Reduce soil erosion
- Goal 12: Improve water quality and ensure an ample supply of potable water
- Goal 14: Ensure the safe disposal of sewage
- Goal 15: Ensure a safe, abundant supply of water

These goals and policies as well as the influence of the physical geography of the county are reflected in the future land use maps of both comprehensive plans. The zoning of the City and County are then derived from these maps. Thus environmentally sensitive areas such as floodplains and floodways are appropriate accounted for in current and future land use.

Geographic Information Systems

Via the Geographic Information Systems implementation plan of the MPO, further layers of data related to environmental mitigation will be incorporated into the County GIS. For example, this will include the addition of a layer related to historic preservation.

Multi-Modal Planning Approach

The most important issue relevant to environmental mitigation that can be directly influenced by the activities of the MPO is the type and variety of infrastructure funded by the MPO. Relevant to mitigation, the MPO has:

- Funded and actively planned for transit
- Funded and actively planned for bicycle and pedestrian infrastructure
- Cooperatively works with the other entities regarding the coordinated provision of infrastructure to guide growth

Air Quality

The Metropolitan Planning Area (MPA) for the Columbus Area Metropolitan Planning Organization includes all of Bartholomew County plus the Blue River Township in Johnson County and the Jackson Township of Shelby County. The remaining portions of Johnson and Shelby County are part of the MPA for the Indianapolis MPO. Both Johnson County and Shelby County are part of the 9-County Central Indiana non-attainment area for the eight hour ozone standard. Modeling for these two areas was performed by the Indianapolis MPO.

Any changes to the CAMPO Transportation Plan that would involve either the Blue River Township of Johnson County or the Jackson Township of Shelby County will have to be done in coordination with the Indianapolis MPO and the next cycle of air quality modeling.

Plan Adoption Resolution

Resolution 2007 – 5

RESOLUTION FOR ADOPTING THE TRANSPORTATION PLAN FOR THE METROPOLITAN PLANNING AREA OF THE COLUMBUS AREA METROPOLITAN PLANNING ORGANIZATION FOR YEARS 2008 – 2035

WHEREAS, the Columbus Area Metropolitan Planning Organization is the designated Metropolitan Planning Organization and responsible for transportation planning in the City of Columbus, Bartholomew County, Blue River Township of Johnson County and Jackson Township of Shelby County, and

WHEREAS, the development of a transportation plan, which includes major local and state projects during the next twenty-five (25) years is a requirement and part of the comprehensive planning process, and

WHEREAS, the Transportation Plan 2008 - 2035 was developed by the staff of the Metropolitan Planning Organization and recommended for approval by the Technical Advisory Committee, and

WHEREAS, the representation on the Technical Advisory Committee consists of those agencies initiating the recommended projects and have the authority to execute them, and

WHEREAS, the representation on the Policy Board consists of local elected and appointed officials representing over seventy-five (75) percent of the population within the Metropolitan Planning Area.

NOW, THEREFORE BE IT RESOLVED by the Policy Board of the Columbus Area Metropolitan Planning Organization that the presented Transportation Plan 2008 – 2035 is hereby accepted and adopted.

Approved this 23rd day of May 2007

David L. Fisher

David L. Fisher, President

Fred Armstrong

Attest: Fred Armstrong, Secretary

Air Quality Conformity Resolution

Resolution 2007 – 6

A RESOLUTION OF THE COLUMBUS AREA METROPOLITAN PLANNING ORGANIZATION POLICY BOARD CERTIFYING THAT THE TRANSPORTATION PLAN 2008 – 2035 CONFORMS TO THE REQUIREMENTS OF THE 1990 CLEAN AIR ACT (CAAA).

WHEREAS, the Columbus Area Metropolitan Planning Organization is the designated Metropolitan Planning Organization and responsible for transportation planning in the City of Columbus, Bartholomew County, Blue River Township of Johnson County and Jackson Township of Shelby County, and

WHEREAS, the Blue River Township of Johnson County and the Jackson Township of Shelby County are part of the 9-County Central Indiana non-attainment area for the eight hour ozone standard, and

WHEREAS, emissions modeling of the 9-County Central Indiana non-attainment area was performed by the Indianapolis Metropolitan Planning Organization, and

WHEREAS, the analysis of the results of this modeling found the Transportation Plans for the 9-County Central Indiana non-attainment area to be in conformity with the goals and objectives of the State Improvement Plan (SIP), and

WHEREAS, the CAMPO Transportation Plan 2008 – 2035 is consistent with the modeling performed for the Blue River Township of Johnson County and the Jackson Township of Shelby County by the Indianapolis Metropolitan Planning Organization.

NOW, THEREFORE BE IT RESOLVED that the Policy Board of the Columbus Area Metropolitan Planning Organization certifies that the presented Transportation Plan 2008 – 2035 conforms to the broad intentions for achieving and maintaining National Ambient Air Quality Standards and the requirements of the 1990 Clean Air Act Amendment.

Approved this 23rd day of May 2007

David L. Fisher

David L. Fisher, President

Attest: Fred Armstrong, Secretary

Endnotes

[1] Federal Highway Administration, http:/www.fhwa.dot.gov/
[2] Texas Transportation Institute 2003 Urban Mobility Study
[3] Woods and Poole Economics, Inc., Columbus, IN MSA 2004 Data Pamphlet
[4] Woods and Poole Economics, Inc., Columbus, IN MSA 2004 Data Pamphlet
[5] Woods and Poole Economics, Inc., Columbus, IN MSA 2004 Data Pamphlet
[6] Statistics and trend analysis of this paragraph is from the Victoria Transportation Policy Institute, "The Future isn't What It Used to be" by Todd Litman, 24 Jan 05
[7] Turner Fairbank Highway Research Center Website, http://www.tfhrc.gov/pubrds/fall94/p94au28.htm
[8] International Walk to School Website, www.iwalktoschool.org